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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,611	07/23/2003	Constantinos Joannou	JOANN-12.US	7612

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EXAMINER	
BERHANU, SAMUEL	

ART UNIT	PAPER NUMBER
2838	

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,611	JOANNOU, CONSTANTINOS	
	Examiner	Art Unit	
	Samuel Berhanu	2838	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4 and 6-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Joannou (US 5,103,155).

Regarding Claim 1, Joannou discloses in Figures 4a-4e, a multi-pole switching system comprising: a) a series of parallel contactor bars 45, 46, 47, 48,49,50) supported in a non-conductive frame (60) (Column 7, lines4-6) and interspaced with shiftable contactors (41,42), the shiftable contractors each having generally centrally located support openings (air opening); b) wiring connection means (5,6,7,8) for coupling the contactor bars to external wiring; c) an alignment shaft whereon said shiftable contactors are slideably mounted through said support openings (40); the shiftable contactors being positioned to effect contact with the contactor bars by advancement along the alignment shaft and thereby achieve switch closure (Column 6, lines 48-68).

Regarding Claim 2, Joannou discloses in Figure 1, drive means (relay coil) for displacing the shiftable contactors along the alignment shaft to effect switch closure (Column 7, lines 7-24).

Regarding Claim 3, Joannou discloses in Figures 4a-4e first resilient, nonconductive, first spring means (43, 44) positioned along the alignment shaft to bias the shiftable

contactors to move, upon deactivation of the drive means, into a neutral condition (Column 6, lines 54-60).

Regarding Claim 4, Joannou discloses in Figures 4a-4e, second resilient, nonconductive, second spring means (43,44) positioned along the alignment shaft, adjacent the shiftable contactors to press the shiftable contactors resiliently against the contactor bars to obtain a good electrical contact (Column 6, lines 54-60).

Regarding Claim 6, Joannou discloses in Figures 4a-4e, wherein said contactor bars and shiftable contactors are assembled in combinations that will constitute switch closures for either of the two conducting configurations of a double-pole, double-throw switch or constitute a neutral position providing an `open` condition.
(Column 6, lines 54-60)

Regarding Claim 7, Joannou discloses in Figures 4a-4e, Solenoid means (12,13) for displacing the shiftable contactors along the alignment shaft to effect switch closure (Column 7, lines 7-37).

Regarding Claim 8, Joannou discloses in Figures 4a-4e, a plurality of conductors (45, 46, 48, 49) to be connected to said external wiring wherein a conductor-receiving opening (a hole on conducting spacers) is formed in an end of each contactor bar (47, 50, 53, 55) and the conductors are directly coupled to the fixed contactor bars (45,46, 48, 49, 51, 52, 54, 54) by the compressed engagement of the ends of said contactor bars around such conductors when positioned within said openings (noted that the cables are connected at the terminal or at the end of contactor par in order to established electrical connection).

Regarding Claim 9, Joannou discloses in Figures 4a-4e, wherein at least one of said conductors (45, 46, 48, 49) is directly connected to more than one contactor bar (45, 46, 48, 49).

Regarding Claim 10, Joannou discloses in Figures 4a-4e, wherein the conductors (45, 46, 48, 49) are free of curvature as they engage with such contactor bars (47, 50, 53, 55).

Regarding Claim 11, Joannou discloses in Figures 4a-4e, wherein the conductors are free of curvature as they approach such contactor bars (noted that the flat strip contacts and conducting spacers have a straight geometric shape).

Regarding Claim 12, Joannou discloses in Figures 4a-4e, switching system as in wherein such conductors are fixed to eliminate their movement during operation of the switch (noted that the flat strip contacts and conducting spacers are fixed).

Regarding Claim 13, Joannou discloses in Figures 4a-4e, electronic means (energizing a relay) to effect operation of the solenoid means to provide a relay (column 7, lines 7-24).

Regarding Claims 14, Joannou discloses in Figures 1-4, providing current from a supply source through cables to a battery to be charged comprising: a) first electrical circuit means (10) for sensing the voltage of the battery to be charged, said first electrical circuit means having means for being connected to said battery to be charged through cables; b) multiple solenoids (12, 13) actuatable by said first electrical circuit to advance the shiftable contactors along the alignment shaft respectively in both directions; c) means associated with said first circuit means to permit activation of the

solenoids only when the cables are in contact with a battery to be charged that has a voltage that is over a preselected threshold voltage level (Column 3, lines 31-42, Column 4, lines 1-41).

Regarding Claim 15, Joannou discloses in Figures 1-4, a second electrical circuit means for sensing when not all of the cables are connected to either the supply source or the battery to be charged and thereupon for correspondingly deactivating said solenoids, said second electrical circuit means comprising (Column 6, lines 11-160 a) a pulse generator (26) which provides an output pulse with a short-term duty cycle for disabling activation of the solenoids by the first electrical circuit means for the duration of the pulse; wherein said pulse generator is connected to said first electrical circuit means to place the switch in a neutral position for the duration of said pulse, whereafter the first electrical circuit means is operative to ensure that, if any of the cables are disconnected during the output pulse, then the switching system will stay in its neutral position upon the termination of said output pulse (Column 4, lines 60-68, Column 4, lines 1-10, Column 6, lines 33-47).

Regarding Claim 16, Joannou discloses in Figures 1-4, a third electrical circuit (19) means connected to disable said pulse generator and suspend the generation of pulses when the current flowing through the switch is above a threshold current value.

Regarding Claim 17, Joannou discloses in Figures 1-4, wherein said third electrical circuit (19) means establishes that said current is over said threshold current value (when the starter draw heavy current) by sensing when the voltage of the supply source

drops below (senses low voltage) a threshold voltage value (Col. 5,lines 4-11).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joannou (US 5,103,155) in view of Zumeris (5, 616, 980).

Regarding Claim 5, Joannou does not disclose explicitly, wherein said spring means is provided by silicone rubber. However, Zumeris discloses in Figure 1A, spring means (36,38,44) is provided by silicone rubber (Column 6, lines 34-36). It would have been obvious to a person having ordinary skill in the art at the time of the invention to substitute Joannou's spring with a Silicone rubber spring as taught by Zumeris in order to have a strong force that prevents the circuit from undesired deformation and short circuit.

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joannou (US 5,103,155) in view of Nagao (US 5,818,115).

Regarding Claim 18, Joannou does not disclose explicitly, wherein said threshold voltage value is in the range of 10 to 11 volts. However, Nagao discloses in Figure 1 and Col.7, lines 8-7, wherein said threshold voltage value is in the range of 10 to 11 volts. It would have been obvious to a person having ordinary skill in the art at the

time of the invention to modify Joannou's battery charging cable system and use a threshold voltage in the range of 10, 11 voltage as taught by Nagao in order to monitor and control overcharging and undercharging of the battery more effectively.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joannou (US 5,103,155) in view of Giuffra (4,180,746).

Regarding Claim 19, Joannou does not disclose explicitly, coupling means for attaching cables to said by which the switching system may be used to connect to batteries in parallel. However, Giuffra discloses in Figure 1 and Col.1 in lines 49-53, coupling means for attaching cables to said by which the switching system may be used to connect to batteries in parallel. It would have been obvious to a person having ordinary skill in the art at the time of the invention to use a cable with a switch means in Joannou's battery charging cable system in order to connect batteries in parallel as taught by Giuffra to prevent excessive sparking at the pole of the batteries to which battery connection is made, overheating of cables and overheating of batteries due to excessive current flow.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samuel Berhanu whose telephone number is 571-272-8430. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on 571-272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SB

Adolf Deneke Berhane
Primary Examiner